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## CASE STUDY

# SnowedOut Atlanta: Examining digital emergence on facebook during a crisis

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## Abstract

Individuals in emergencies form spontaneous, emergent groups to respond and recover. With the rise of social media use in crises, academics and professionals must be aware of how groups digitally coordinate emergent response efforts. This paper examines digital emergence through the case of *SnowedOut Atlanta*, a Facebook group formed during the 2014 ice storms in Atlanta. The posts and actions of the group members are in line with those of traditional emergent groups. For example, group members shared informational, material, and emotional support. The findings also provide implications for practitioners and insight into the communication of such groups. In particular, emergency managers have an opportunity to seek out and partner with these types of groups in future similar events.

## 1 | INTRODUCTION

On Tuesday, 28 January 2014, a winter storm brought unprecedented snow to the south-east United States, a region not accustomed to this type of weather. In Atlanta, traffic came to a halt across the city (CBS/AP, 2014; Trubetskoy, 2014). As the storm worsened Tuesday afternoon, motorists were stranded; cars were abandoned; children had to stay at school overnight; and two mothers gave birth in their cars. Stores such as Home Depot opened their doors to stranded individuals. The National Guard was deployed to Atlanta for support (Barkhorn, 2014), and Governor Nathan Deal declared a state of emergency.

With the city at a standstill, a Georgia woman reached out over social media to empower individuals to help others affected by the storm. Michelle Sollicito created the *SnowedOut Atlanta* (SOA) Facebook page. The page began with stranded motorists seeking road and route information, but became a massive online platform for emergency response (Garner, 2014).

Two weeks after the first storm, a second winter storm struck. Before the storm, the SOA page was activated for Atlanta residents to help one another. Members flocked to the page to both seek and share information on emergency kits, weather forecasts, power outages, and route warnings. By the second storm, SOA had approximately 53,000 members. Because of its use during the first storm,

members were familiar with the page's purpose and protocols. As a result, the page was better organized during the second storm.

Sollicito and the members of SOA became spontaneous volunteers in the response to the snowstorm emergency (Waldman, Yumagulova, Mackwani, Benson, & Stone, 2017). This event provides a window through which to study a phenomenon that is a growing dynamic in emergencies—the role of spontaneous, digital volunteers, or *digital emergent groups* (Pyle & Boatwright, 2018; Strandh & Eklund, 2017). For the present study, the authors review relevant literature on social media in crisis communication, emergent behaviour in disasters, and the intersection of social media and digital communication with emergence and spontaneous volunteerism. We then discuss our method, present our findings, and discuss implications.

## 2 | SOCIAL MEDIA USE IN CRISIS RESPONSE

Over the past decade, much research has examined social media engagement during crises. On the one hand, scholars have found that social media during crises can be detrimental. For example, Wigley and Fontenot (2010) examined the detrimental role of user-generated content as crisis managers lost the ability to control information during the Virginia Tech massacre. Another

challenge is related to the nature of individual usage in crisis. A good example of this is Freberg's (2012) study of intention to comply with a nationwide food recall message. Freberg found that, while older citizens did not see user-generated social media content as credible, younger populations were likely to seek out social media messages and comply with them. On the part of responders, Lachlan, Spence, Lin, Najarian, and Del Greco (2016) examined emergency manager communication leading up to a major snowstorm in the north-east United States. Lachlan et al found that emergency managers underutilized Twitter as a response tool. In a related study, Avery (2017) found that public information officers in public health departments in the United States were engaging with social media at a very low rate during the Zika virus scare in 2016.

Each of these studies highlights the challenges associated with effectively coordinating and managing messaging via social media during and after a crisis. These studies represent only one piece of the larger puzzle, however. Scholars have also found instances where social media have been productively employed following crises as well. An example of this is Vicary and Fraley's (2010) examination of the ways students expressed grief and support through online channels in response to shootings at both Virginia Tech and Northern Illinois University. While this is still a developing area of scholarship, it is clear that there are both strengths and challenges to implementing social media messaging during and after crises. Independently of the nature of social media messaging in crisis, the reality is that social media are part of our societal structure.

As social media use has increased globally, social media use to manage emergencies has also risen. Scholars exploring social media use in emergencies have seen a rise in citizen journalism, where members of the general public act as front-line reporters in emergencies because of their social media engagement (Gillmor, 2006; Goodchild, 2007). Leavitt and Clark (2014) and Leavitt and Robinson (2017) have studied the phenomenon of distributed problem-solving, where individuals spread across a digital network are able to coordinate to manage complex problems. Another development has been crisis mapping, whereby individuals tap into social media data to provide up-to-the-minute mapping of existing hazards and needs in emergency contexts. Perhaps the best-known example of crisis mapping is the Ushahidi platform, which has been used to track everything from violence at election sites to communities at risk during a wildfire (Anthony, 2018; Hersman, 2009). Lastly, social media has enabled citizens to assist responders with various aspects of managing an emergency (Artman, Brynielsson, Johansson, & Trnka, 2011; Hughes, St. Denis, Palen, & Anderson, 2014).

These areas of study provide rich opportunities for communication practitioners and emergency managers to learn how best to manage disasters and mass crises. Perhaps one of the most fascinating phenomena in the study of disaster management and communication is emergence, also referred to as spontaneous volunteerism (Waldman et al., 2017).

### 3 | EMERGENCE IN DISASTERS

The concept of emergence comes from the literature on disaster sociology, which is chiefly concerned with individual behaviours in disasters, emergent organizations in disaster situations, and in how disaster responses are managed (Quarantelli & Dynes, 1977). The field of disaster sociology arguably began with Samuel Prince's doctoral dissertation, conducted in 1920, examining the 1917 Halifax shipping disaster (Drabek & McEntire, 2003; Prince, 1920; Scanlon, 1998). Prince found that following the explosion, average citizens began helping one another, offering aid as they were able. Citizens worked together to respond to the disaster without apparent organization, structure, or prior training, until they were not needed.

The examination of emergent organizations is of chief importance in disaster sociology (e.g., Fritz & Marks, 1954; Neal & Phillips, 1995; Thompson & Hawkes, 1962). Emergent groups might also be thought of as "private citizens who work together in pursuit of collective goals relevant to actual or potential disasters but whose organisation has not yet become institutionalized" (Stallings & Quarantelli, 1985, p. 84).

Emergent behaviour is tied to community resilience and is marked by a consistent range of behaviours. In their 2015 piece establishing best practices in emergence, Waldman and Kaminska present six characteristic features of emergent volunteers: "*convergence, altruism, emergence, networked intelligence, gap-filling, and resilience*" (p. 4, italics in the original). Convergence relates to sharing information and resources. Altruism is the tendency towards collaboration. Emergence is the spontaneity of this type of group formation. Collective intelligence is the tendency of these groups to function cohesively, organizing tasks effectively. Gap-filling is the tendency of emergent groups to meet needs until official emergency management organizations arrive. Resilience is related to community capacity to recover following disasters as a result of effective coordination and cooperation (Aldrich, 2012). Individuals in emergencies will tend to emerge, respond to needs they see, and then disperse. In the digital era, this dynamic has been observed not only in physical spaces, but also in digital spaces (Chandrasekhar & Finn, 2013; Pyle & Boatwright, 2018).

### 4 | EMERGENCE IN DIGITAL CONTEXTS

While recent research in this area has focused on the dynamics of disasters (Donner & Rodriguez, 2008; Rodriguez, Donner, & Trainor, 2018), scholars in the field of disaster sociology have also explored the function of digital communication on emergence and disaster response. Following Hurricane Katrina, scholars began to explore the impact of digital communication on engagement after disasters (Ostertag & Ortiz, 2015; Waldman & Kaminska, 2015). Later research studied disasters, such as the California wildfires in 2007, the earthquake in Christchurch, New Zealand in 2011, and hurricane Sandy in 2012, led to the development of digitally enabled emergent volunteering (DEEV) as a major area of study in the

context of emergent behaviour in disasters (Waldman & Kaminska, 2015).

Since the Katrina response in 2005 where digital bulletin boards functioned as the hub for emergent organizing (Ostertag & Ortiz, 2015), DEEV has been examined in numerous events. For example, Waldman et al. (2017) studied DEEV behaviours in two separate floods in Alberta in 2013, an oil spill response in Vancouver in 2015, and catastrophic wildfires in Alberta in 2016. In each event, Waldman et al. explore the various ways that spontaneous volunteers (SVs) formed groups online and coordinated their responses. In each instance, digital communication was integral to the functioning of these emergent groups.

The growing literature in this area also includes important developments in distributed problem-solving and crisis informatics. For example, Vieweg, Palen, Liu, Hughes, and Sutton (2008) tracked the well-intentioned distributed problem-solving post-Virginia Tech that resulted in online groups accurately identifying the 32 victims of the Virginia Tech shooting before the university officially announced the names of the victims. Social media are also being employed on a global scale as people emerge and collectively respond online after disasters. For example, Tandoc and Takahashi (2017) examined the use of Facebook after typhoon Haiyan, which became a hub for emergent activity when traditional communication methods shut down. To be effectively engaged in response management and disaster communication in the long term, emergency response entities at all levels will need to engage meaningfully with digital emergent groups. Much communication among lay audiences is occurring in digital spaces.

## 5 | DIGITAL COMMUNICATION IN CRISIS SCENARIOS

The focus of the present study is one Facebook group. Founded in 2004, Facebook "is an online social networking service where users create profiles, connect to other users as 'friends,' and exchange messages, photos, and videos" (Quesenberry, 2016, p. 87). Facebook allows users to create and join groups based on common interests (Quesenberry, 2016). This is important for areas affected by crises as the platform allows for the rapid development of an online triage unit. The proliferation of posts during a crisis is indicative of the platform's functional capacity for the swift exchange of information.

Recent research has found an increase in the implementation of social media messaging for risk mitigation and crisis management. For example, Tang, Zhang, Xu, and Vo (2015) examined the use of Facebook messaging for risk management during the California drought of 2014. Wang and Zhuang (2017) studied a wide array of Twitter content to determine ways in which social media messaging shaped the response to Hurricane Sandy. Individuals use Facebook in many ways during crises, and there is a rich array of literature examining social media use during and after crises (e.g., Austin, Liu, & Jin, 2012; Graham, Avery, & Park, 2015; Lachlan et al., 2016).

### 5.1 | Convergence and organization

Moreover, as users share and consume information through social media during a crisis, extant literature suggests that this leads to an increased likelihood of organization and convergence in both physical and technological settings. Not only do individuals rally around hashtags online, but also utilize them to form work groups offline. In the wake of the 2011 riots in London, Glasgow and Fink (2013) found that hashtags related to cleaning up the city had the longest lifespan because "cleanup is more active, and more robust" (p. 319). As a conversation, the cleanup hashtags lived longer and decayed more slowly than those marked as emotional responses to the riots.

The concept of hashtags functioning as hubs for emergent response and organization is also highlighted in Pyle and Boatwright's (2018) piece examining the role of hashtags in active shooter events as hubs for emergent organizing. Pyle and Boatwright found that, following an active shooter event, a hashtag about the event functioned as an organizer and catalyst for emergent response efforts. Waldman and Kaminska (2015) found similar engagement with the hashtag #YYCHelps in response to the 2013 flood in Calgary, Alberta. Citizens used the hashtag as a hub for sharing information and supplies during the flood response, and it became the focus for the establishment of emergent volunteers during the response. Studies in this area suggest that digital emergence marks a movement towards the hybridization of emergent response, where individuals are inhabiting both digital and physical spaces as they engage in disaster volunteerism.

### 5.2 | Emotional support and recovery

While digital platforms can sometimes provide vectors for negative or even actively hostile messaging or content, much recent research has found digital emergence as a source of emotional support and recovery during and after an event. For example, Vieweg et al. (2008) found that individuals seeking to identify those who were killed in the Virginia Tech shooting acted altruistically and with respect to the families of the victims. Pang and Ng (2016) found that, even in the midst of a riot in Singapore, the messaging that was most promoted, shared, and retweeted was messages thanking and praising the work of other individuals.

## 6 | COMMUNICATION IN DIGITAL EMERGENCE

The current study contributes to this body of scholarship by drawing on Stallings and Quarantelli's (1985) original conceptualization of emergent citizen groups to argue that emergent citizen groups are increasingly taking shape online in the wake of emergencies. We build on the recent scholarship on DEEV development to explore the related concept of communication in digital emergence (CDE). Recent research on DEEV has presented a challenge with understanding how these groups form online, how to connect with and utilize the resources these groups represent, and how to get these

spontaneous volunteers to transition from one-time helpers to long-term affiliated volunteers (Waldman & Kaminska, 2015; Waldman et al., 2017). This study is an attempt to help make sense of these issues by providing a lens into the underlying communication processes that exist within and around these groups.

Our interest is to make sense of not only the emergence and activities of volunteers during a crisis, but also what types of communication processes are fundamental to the development and success of such groups. We contend that these groups organize using digital platforms, and function with similar efficiency as offline emergent citizen groups, but with certain distinguishable characteristics that warrant further consideration as avenues of crisis communication research. Additionally, while past research has focused on groups that formed online and responded physically to crises, we are also interested in groups that operate online for similar purposes as traditional emergent groups.

RQ<sub>1</sub>: What was the nature and function of the *SnowedOut Atlanta* Facebook group?

RQ<sub>2</sub>: In what ways did the *SnowedOut Atlanta* Facebook group imitate the functions of a traditional emergent group?

RQ<sub>3</sub>: What types of communication processes comprised the formation and operations of the *SnowedOut Atlanta* Facebook group?

RQ<sub>4</sub>: In what ways can groups like *SnowedOut Atlanta* contribute to emergency response efforts?

## 7 | METHODS

This case study employed a directed content analysis (Hsieh & Shannon, 2005) of SOA wall posts to understand how individuals used Facebook to communicate disaster information. The SOA group developed organically and centrally depended on audience interaction. By using social media, the SOA group was successful in transmitting disaster relief information to residents of Atlanta and the surrounding communities. Since this group seems to have been created and managed in a novel manner, the case study method is most applicable for this study.

### 7.1 | Sample

The SOA case was created and utilized during and after the 2014 Atlanta snowstorms. The selected period of time for this study included the days leading up to the second snowstorm to events that followed the second storm. By the second storm, most members understood the purpose of SOA and used it accordingly. Additionally, this study narrowed its content selection to primary posts on the SOA Facebook page. Primary posts included both original posts and reposts; comments were excluded. For this study, the total number of posts from 10 February 2014 through 14 February 2014 was 3,300. To gain a sample of 30% of SOA wall posts during the second storm, every third post was coded. The study's final sample comprised 986 posts.

### 7.2 | Coding strategy

A total of 986 posts were coded for seven categorical variables: four affective categories and three cognitive. The coding categories were constructed from previous literature on social media, crisis communication, and uses and gratifications theory (see McGuire, 1974; Walker, 2014). The affective categories and frequencies are gratitude 5.3% ( $n = 52$ ), support/encouragement 14.2% ( $n = 140$ ), concern 7.3% ( $n = 72$ ), and complaint 4% ( $n = 39$ ). The cognitive categories and frequencies are information-seeking 5.3% ( $n = 644$ ), information-sharing 18.4% ( $n = 181$ ), and emerging information 44.3% ( $n = 437$ ). Of these emerging information, 40.7% of posts were that of photography, 37.3% of posts were that where information was shared through an external source (i.e., websites), and 8.7% of posts were that of videos.

For each post, posts were identified by post number, date (i.e., month, day, and year), and number of Facebook "Likes." Data management was conducted manually, using printouts of posts, handwritten notes, and electronic files to organize and interpret data. The coding process yielded seven themes, which we explore in the following section. Two individuals coded the data set. Each post was coded into one of the seven categories. To determine intercoder reliability, two coders coded 10% of the SOA posts in the sample ( $n = 108$ ). While Cohen's kappa is a widely used measure for intercoder reliability, some studies have indicated Krippendorff's alpha may be a more accurate measure of intercoder reliability (Antoine, Villaneau, & Lefevre, 2014; Hayes & Krippendorff, 2007). To that end, this study employed Krippendorff's alpha to determine reliability. After an initial round of coding, disagreements were resolved through discussion and clarification of the codes. This process was repeated following discussion and clarification, resulting in an intercoder reliability of ( $\alpha = 0.89$ ) across all measures.

The statistics derived from this analysis only provide a narrow description of the convergence and interaction of this particular group. As a result, and for the focus of this manuscript, the authors engaged in a thematic analysis of the content in comparison with similar previous research (e.g., Sharpe & Bennett, 2018; Vieweg et al., 2008; Waldman & Kaminska, 2015) to increase understanding of the dimensions and formation of digital emergent citizen groups.

## 8 | RESULTS AND DISCUSSION

The focus of this study was twofold: (a) to determine whether and how SOA functions as a digital emergent group; and (b) to explore the types of communication that led to the formation and management of the group. Note: The data quoted here are reported verbatim and include all original grammatical and spelling errors.

### 8.1 | *SnowedOut Atlanta*: A digital emergent group

The first research question was focused on the nature of SOA, and the second research question asked whether and how the functions of the SOA group imitated those of a traditional emergent group.

Several themes arose from the data that allowed us to answer these questions. The first category of themes that arose from the data was related to social support, including expressions of sympathy, empathy, and grievances.

### 8.1.1 | Support

Exemplars in this category were social support and expressions of encouragement. For example, "Please stay indoors, report outages and help each other. We shall overcome!" and "Keeping y'all in my thoughts and prayers." This type of support was common on the page. Another example came after the storm had abated and individuals were starting to return to normal, for example: "We did good Atlanta. We have learned."

In addition to social support, SOA members began to offer tangible support to one another after the storms. Perhaps the best example of this was the comment offered by a truck driver who posted his location and shared the following:

Hey folks. I'm a trucker stuck on I-285 at exit 60 (Riverdale RD). I have some food and water for anyone close to me. I'll walk up to a mile or so to help if needed. I don't have a ton but I have enough to spare.... If you're pregnant, have kids with you or elderly. You will be priority. Don't be afraid to ask. Times like this-we help each other.

This truck driver was a spontaneous volunteer (Waldman et al., 2017) and served as an exemplar for the types of behaviours that were evident during the storm. Individuals used SOA as a hub for coordination and engagement as they engaged in DEEV and spontaneously responded to the needs identified in their close proximity.

Other examples of support included offers of shared resources and offers of a place to stay for the evening for those in walking distance. For instance, "We have space in Johns Creek for anybody that need help and as of right now 2 generators" and "If there is anyone in the Roswell area with small children who have no power or food and need help PLEASE contact me!!! I have plenty of power and food to help! Our babies are MOST important!!!!" These findings echo what we see in related studies that individuals emerge to both seek and share support (Pang & Ng, 2016; Pyle & Boatwright, 2018; Waldman & Kaminska, 2015). Beyond the expected physical support, as is demonstrated in the following sub-themes, SOA participants also sought the group for emotional support.

### 8.1.2 | Gratitude

Posts coded as "gratitude" were either general comments to the group, or specific comments thanking an individual or organization who were helpful during and after the storm. For example: "Thank God this storm was after the one two weeks ago... Can you imagine if they were reversed? #ThankYouFather" and "Thank you to the guys and lady that gave my husband, me and our friend a ride home from the Pleasant hill

road Walmart!!!!!!" This type of post chronicled for the entire group the ways in which the community had come together to be supportive in the aftermath of the total city shutdown. Posts coded "gratitude" added to the overall support function of the group, and were an important aspect of the group function that helped members engage in sensemaking.

### 8.1.3 | Concerns

In the aftermath of the storm, many SOA users shared concerns with one another. Some exemplars include "In bed scared too death for some reason! I'm a true Georgian and I've never been through anything like this" and "im in west georgia....a tree fell on my home a few minutes ago...thankfully it didnt go thru the roof...power is flickering off and on....I have 6 children here.....needless to say im very nervous right now.." By sharing these concerns, members created space for additional social support and possible aid-sharing if necessary.

### 8.1.4 | Complaints

A comment coded as a complaint looked like this: "My power been out almost 24 whole hours this is crazyyy wth...what was the point of having out of state power company's come if we still In the dark 24 hours later.... #sad" or "SO... Any experts (based on the weatherman calculations) When is the soonest this will all be over? So I can have my birthday party that I have been planning and saving for for 2 months." While concerns shared appeared to be a form of social support seeking behaviour, complaints seemed to be a commentary on the situation by frustrated residents.

In the area of support, we see Waldman and Kaminska's (2015) concepts of convergence, altruism, collective intelligence, gap-filling, and resilience. In the themes of gratitude and concern, we see Waldman and Kaminska's (2015) concept of altruism, and Kent and Taylor's (2002) concept of empathy. After analysing the data, it is clear that SOA functions as a digital emergent group. Each of the six characteristics Waldman and Kaminska (2015) found in traditional emergent groups was represented by both the communication and the actions undertaken by the SOA group members. These findings provide important implications for DEEV research (Waldman & Kaminska, 2015) and for understanding how emergent groups form, function, and disperse in digital contexts. These findings also help to answer the third research question.

## 8.2 | Emergent communication: Information management and processing

The third research question focused on the types of communication that characterized the group's formation and management. Themes that arose from the data were also related to the management of information as it developed during and after the emergency.

### 8.2.1 | Information and advice seeking

This type of post was second only to information sharing over the course of the emergency timeline. Individuals would post with



questions such as: "Can anyone give me an update on the power outage situation near Webb road? I checked the map, but it's kind of vague and my friend has turned off her phone to conserve battery for emergencies." SOA members would also go to the page to solicit advice: "There is a large tree that has fallen at the entrance of my Buckhead street (very close to Lenox in the Pine Hills neighborhood). How do we get help to clear it?" This type of post, along with the information and advice sharing posts described below, best exemplify the types of activities that characterize digital emergent citizen groups. This type of information seeking was important for the development of situational awareness during the storm (Cameron, Power, Robinson, & Yin, 2012), which is an area that deserves further study. Future examinations of digital emergent groups should focus on the nature of broader situational awareness in a storm or disaster, and the role that emergent groups can play in expanding the bandwidth of the official emergency response entities involved.

### 8.2.2 | Information and advice sharing

This section captures the most posts by a wide margin (65% of the total coded posts). Individuals in SOA used the group as a platform to ensure that their neighbours, or their digital neighbours, had access to the most up-to-date information about how they could protect themselves and their families while responding to the emergency. Members of SOA shared information: "GEMA (Georgia Emergency Management Agency) relief is set up with food and shelter at the Mall of Georgia in Buford," and "A quick update for forsyth county, in the Cumming Area... Hwy 20 has been plowed and salted in areas. The roads are very bad, thick ice. We have an AWD Subaru Forester and we were able to explore a little without any issues." Also, members shared advice: "I just helped a guy get out of an icy patch on a hill while he was stuck leaning on my car by sprinkling cat food with regular table salt on the road that that's also a good way to get your car out of a slick situation" and "Buy large black trash bags. You can sleep inside them.... Really help contains the heat not a waste use them later." As with the information-seeking posts, these types of posts exemplify the types of actions that characterize digital emergent citizen groups.

By continuously sharing new information with one another during the storm, SOA participants functioned both as citizen journalists (Gillmor, 2006) and as emergency sensors (Goodchild, 2007). Members of SOA served as important extensions to the existing networks of news outlets and emergency responders. Group members were also nodes in a complex system for distributed problem-solving (Leavitt & Robinson, 2017). These are areas that future research on digital emergence should explore more carefully.

### 8.2.3 | Emerging information

This section contains the most varied of examples, as this section captured photograph, video, and other Web-based content related to the developing nature of the emergency across the region in and

around Atlanta. For example: "It's coming down in Locust Grove! [Photo Attached]," "Hey everyone just checking in from Conyers and it's ice everywhere so I'm warm and safe and I hope you are too!! [Embedded video of ice covering landscape]," and "Schools closed in: [Link to page listing school closings]." These posts served to inform the group of where and how the storm was developing across the region. Eventually, emergency responders and law enforcement were tapping into SOA as a resource to follow events as they developed.

This emergent information allowed for mapping and response in the same way that information is used with mapping programs such as the Ushahidi platform (Anthony, 2018). Future research should explore methods for integrating the functions of emergent organizations with the data derived from the emergent digital network.

### 8.2.4 | Emergency response partnership

Examples from our data indicate a variety of ways that digital emergent groups can support organizations. In the case of SOA, this began to happen when emergency responders realized the existence of SOA and began to scan it for important emergency response information. For instance, the group's creator, Michelle Sollicito, posted "If you are currently experiencing an outage, or you know of someone else experiencing one, can you post here? Some of the emergency mgt personnel want to monitor this." This caused members to report outages to the group: "Michelle you said you wanted us to post about outages. My mom's power at Southlake Cove Apartments on jonesboro road in Clayton county lost power at 10:30 a.m. She did call the automated line for Ga Power to report it. Her apartment is all electric no gas. Please pray for her. Thank you." One group member even developed a SOA power outage map (Garner, 2014). Unfortunately, the map program crashed during the second storm. This situation suggests group members understood and were willing to update support organizations (i.e., power company) in real time during a disastrous event.

The question of emergency response support was explored in a recent piece by Sharpe and Bennett (2018). Sharpe and Bennett explored a narrower selection of the total sample explored in this study, but also found strong opportunities for collaborative interaction with emergency response entities. Specifically, they found that nearly half of the total sampled posts (48%) were "of importance to disaster response efforts" (Sharpe & Bennett, 2018, p. 262). Throughout the second set of themes, we again see Waldman and Kaminska's (2015) emergent functions in the intra-group interactions of SOA members. Emergency response entities must make efforts to scan for and engage with emergent groups in both the physical and the digital world. Emergent groups can be leveraged to boost signal on messaging, coordinate resource sharing, and connect those in need with those who can offer aid. This case provides a great opportunity for emergency response organizations to consider how best to partner with future emergent organizations.

## 9 | IMPLICATIONS FOR EMERGENCY RESPONSE

### 9.1 | Enhancing response capacity: Revising best practices

Seeger (2006) wrote the most widely cited piece on crisis communication best practices. These best practices have been expanded and re-examined since that time (see, e.g., Veil & Husted, 2012). One best practice is to “establish a crisis communication network” (Veil & Husted, 2012, p. 133). The specific guideline is to build relationships with internal stakeholders at all levels of the organization, with members of the media, and with external agencies. This best practice should be revised to include partnerships with emergent organizations.

The SOA case provides a clear example of the importance for organizations during and immediately following a crisis to seek out emergent groups in digital spaces. It would benefit organizations to scan digital environments as crises and emergencies develop to determine whether emergent groups have formed. Emergency managers should seek opportunities for partnership with these types of groups, and should develop public-facing systems to connect with emergent groups that form. In the case of SOA, this dynamic developed organically. For example, this message focused on community safety in the storm:

If you have had no power for a long time and are getting desperate, see this list of warming stations/shelters from GEMA. If you can SAFELY get to one of these locations you are advised to do so (NOTE warming stations may have no blankets or food - just heat, shelters have blankets and cots and food usually) [Link to GEMA shelter locations]

Responders at the federal level were also able to tap into this resource to help communicate about timelines and expectations: “Keep in mind folks, that the chain we follow when there's an ‘immediate’ concern is to go to your local officials first, then county, then state, then FEMA. FEMA can only help with the aftermath” (FEMA-R4-External-Affairs). These kinds of partnerships and connections, while useful, were also potentially problematic. Although they developed organically in this storm, there is no reason to assume they would develop similarly in future events. If responders assume emergent groups and community members will come to them, they are setting themselves up for operational failure. Responders must therefore continue to scan for emergent groups as part of their developing communication networks.

## 10 | LIMITATIONS AND FUTURE RESEARCH

This study provides novel insight into an increasingly important crisis response context. However, this study had some limitations that must be addressed. First, this study was limited in that the content

analysis only included one social media platform, Facebook. To have a full understanding of how emerging citizen groups form in digital spaces, it would be beneficial to compare all social media channels utilized by community members of the Atlanta area. Second, the nature of the case study is such that we cannot generalize to other contexts, which is a consistent critique of crisis-related studies. Future research will need to continue to examine similar groups in a variety of other contexts.

### 10.1 | Emergent partnerships: Saving lives in Syria

A relevant exemplar of the power of tapping into emergent organizations and digital networks for emergency management is the early warning system that has been developed to warn Syrian civilians of imminent airstrikes (Loveluck, 2018). A team of programmers have built an app that draws together a human network of plane spotters and social media messaging to set off warning sirens when an airstrike is about to happen. Before the programmers partnered with locals to develop the app, the warning system consisted of a handful of plane spotter warning groups of civilians via walkie talkie. This is only one example of how emergent organizing can lead to life-saving efforts in the midst of emergencies.

The findings presented here indicate that there is much to learn about digital emergent groups. Future studies should employ network theory (Jin & Liu, 2010; Palen, Vieweg, Liu, & Hughes, 2009) or communication infrastructure theory (CIT) (Nah & Yamamoto, 2018) to study how these groups develop across a social network. A network theory approach would enable formal response organizations to more carefully scan for emergent organizations so that they can form robust partnerships early in an emergency. A CIT approach would offer tools to study the nature of citizen journalism and community storytelling during this type of event. According to CIT, the outcome of engaged community storytelling is civic participation (online and offline), community belonging, and collective efficacy because of residents' participation in decision-making and problem-solving processes and outcomes (Nah & Yamamoto, 2018). For SOA, social media shaped the outcome of the emergency. SOA is a prime example of how individuals in the Atlanta metropolitan area used social mobile media to communicate crisis information, and ultimately survive the storm. There are a variety of cases that present researchers opportunities to study this phenomenon.

## 11 | CONCLUSION

The results of this study show that social media offered Facebook users an opportunity to quickly get current and personally relevant information in a crisis. Further, the interactivity of these technologies enabled those who were more affected by the crisis to easily communicate with community members and neighbours and find a better way to emotionally and cognitively cope with their experiences. This case also provides an opportunity for public relations



practitioners in governmental, civic, and emergency response organizations to make sense of and tap into a growing resource for emergency response and communication efforts.

During a disaster, the actions of the public shape the resolution to the problem (Jin, Liu & Austin, 2014). If a person has the opportunity to inform other individuals of a hazardous situation, they can save lives and prevent property damage. The rise of social media's employment during times of uncertainty or unrest has increased at an accelerating rate (Palen & Hughes, 2018), as seen during the Southern California Wildfires, the Haitian earthquake, and the Arab Springs uprisings. Results of the content analysis revealed that an unexpected disaster like the 2014 snowstorms that hit Atlanta could lead to the formation of digital emergent groups. The unique characteristics of such groups make investigation of these sites a rich study area.

## ENDNOTE

<sup>1</sup> Prince's dissertation is available online from Columbia's digital archives, and is a truly compelling chronicle of the Halifax disaster and its aftermath. The authors highly recommend anyone interested in this area of study find and read Prince's piece.

## REFERENCES

- Antoine, J. Y., Villaneau, J., & Lefevre, A. (2014, April). Weighted Krippendorff's alpha is a more reliable metrics for multi-coders ordinal annotations: Experimental studies on emotion, opinion and coreference annotation. In *EACL 2014*. Gotenborg, Sweden.
- Aldrich, D. P. (2012). *Building resilience: Social capital in post-disaster recovery*. Chicago, IL: University of Chicago Press.
- Anthony, K. E. (2018). An international crowdsourcing and crisis mapping platform. In A. V. Laskin (Ed.), *Social, mobile, and emerging media around the world: Communication case studies* (pp. 95–107). Lanham, MD: Lexington Books.
- Artman, H., Brynielsson, J., Johansson, B. J., & Trnka, J. (2011). *Dialogical emergency management and strategic awareness in emergency communication*. In the proceedings of the 8th annual ISCRAM conference.
- Austin, L., Fisher Liu, B., & Jin, Y. (2012). How audiences seek out crisis information: Exploring the social-mediated crisis communication model. *Journal of Applied Communication Research*, 40(2), 188–207. <https://doi.org/10.1080/00909882.2012.654498>
- Avery, E. J. (2017). Public information officers' social media monitoring during the Zika virus crisis, a global health threat surrounded by public uncertainty. *Public Relations Review*, 43(3), 468–476. <https://doi.org/10.1016/j.pubrev.2017.02.018>
- Barkhorn, E. (2014). Map: 'How much snow it typically takes to cancel school in the U.S'. Retrieved from <http://www.theatlantic.com/education/archive/2014/01/map-how-much-snow-it-typically-takes-to-cancel-school-in-the-us/283470/>
- Cameron, M. A., Power, R., Robinson, B., & Yin, J. (2012). *Emergency situation awareness from twitter for crisis management* (pp. 695–698). In Proceedings of the 21st International Conference on World Wide Web. Toronto, ON: ACM.
- CBS/AP (2014). *Road to nowhere: Minor snowstorm brings Atlanta to standstill*. Retrieved from <https://www.cbsnews.com/news/atlanta-other-parts-of-south-paralyzed-by-ice-snowstorm/>
- Chandrasekhar, D., & Finn, D. (2013). *Influence of household recovery capacity and urgency on post-disaster relocation: A case study of The Rockaways, NY after Hurricane Sandy*. Report to the Natural Hazards Center, University of Colorado. Boulder, CO.
- Donner, W., & Rodríguez, H. (2008). Population composition, migration and inequality: The influence of demographic changes on disaster risk and vulnerability. *Social Forces*, 87(2), 1089–1114. <https://doi.org/10.1353/sof.0.0141>
- Drabek, T. E., & McEntire, D. A. (2003). Emergent phenomena and the sociology of disaster: Lessons, trends, and opportunities from the research literature. *Disaster Prevention and Management*, 12(2), 97–112. <https://doi.org/10.1108/09653560310474214>
- Freberg, K. (2012). Intention to comply with crisis messages communicated via social media. *Public Relations Review*, 38(3), 416–421. <https://doi.org/10.1016/j.pubrev.2012.01.008>
- Fritz, C., & Marks, E. (1954). The NORC studies of human behavior in disaster. *The Journal of Social Issues*, 10, 26–41. <https://doi.org/10.1111/j.1540-4560.1954.tb01996.x>
- Garner, M. (2014). *In Atlanta snow storm, it's social media to the rescue*. *Atlanta journal-constitution*. Retrieved from <http://www.ajc.com/news/atlanta-snow-storm-social-media-the-rescue/xUVi2i7bUOAeBGfZfD2KHM/>
- Gillmor, D. (2006). *We the media: Grassroots journalism by the people, for the people*. Sebastopol, CA: O'Reilly Media.
- Glasgow, K., & Fink, C. (2013). Hashtag lifespan and social networks during the London riots. In A. M. Greenberg, W. G. Kennedy & N. D. Bos (Eds.), *Social computing, behavioral-cultural modeling and prediction, number 7812 in lecture notes in computer science* (pp. 311–320). Berlin Heidelberg, Germany: Springer.
- Goodchild, M. F. (2007). Citizens as sensors: The world of volunteered geography. *GeoJournal*, 69(4), 211–221. <https://doi.org/10.1007/s10708-007-9111-y>
- Graham, M. W., Avery, E. J., & Park, S. (2015). The role of social media in local government crisis communications. *Public Relations Review*, 41(3), 386–394. <https://doi.org/10.1016/j.pubrev.2015.02.001>
- Hayes, A. F., & Krippendorff, K. (2007). Answering the call for a standard reliability measure for coding data. *Communication methods and measures*, 1(1), 77–89. <https://doi.org/10.1080/19312450709336664>
- Hersman, E. (2009). *Reporting crisis via texting [video file]*. Retrieved from [https://www.ted.com/talks/erik\\_hersman\\_on\\_reporting\\_crisis\\_via\\_texting](https://www.ted.com/talks/erik_hersman_on_reporting_crisis_via_texting)
- Hsieh, H. F., & Shannon, S. E. (2005). Three approaches to qualitative content analysis. *Qualitative health research*, 15(9), 1277–1288. <https://doi.org/10.1177/1049732305276687>
- Hughes, A. L., St Denis, L. A., Palen, L., & Anderson, K. M. (2014). *Online public communications by police & fire services during the 2012 Hurricane Sandy* (pp. 1505–1514). In Proceedings of the SIGCHI conference on human factors in computing systems. Toronto, ON: ACM.
- Jin, Y., & Liu, B. F. (2010). The blog-mediated crisis communication model: Recommendations for responding to influential external blogs. *Journal of Public Relations Research*, 22(4), 429–455. <https://doi.org/10.1080/10627261003801420>
- Jin, Y., Liu, B. F., & Austin, L. L. (2014). Examining the role of social media in effective crisis management: The effects of crisis origin, information form, and source on publics' crisis responses. *Communication research*, 41(1), 74–94. <https://doi.org/10.1177/0093650211423918>
- Kent, M. L., & Taylor, M. (2002). Toward a dialogic theory of public relations. *Public Relations Review*, 28(1), 21–37. [https://doi.org/10.1016/S0363-8111\(02\)00108-X](https://doi.org/10.1016/S0363-8111(02)00108-X)
- Lachlan, K. A., Spence, P. R., Lin, X., Najarian, K., & Del Greco, M. (2016). Social media and crisis management: CERC, search strategies, and Twitter content. *Computers in Human Behavior*, 54, 647–652. <https://doi.org/10.1016/j.chb.2015.05.027>
- Leavitt, A., & Clark, J. A. (2014). *Upvoting hurricane Sandy: Event-based news production processes on a social news site* (pp. 1495–1504). In Proceedings of the SIGCHI conference on human

- factors in computing systems. Toronto, ON: ACM. <https://doi.org/10.1145/2556288.2557140>
- Leavitt, A., & Robinson, J. J. (2017). *The role of information visibility in network gatekeeping: Information aggregation on Reddit during crisis events* (pp. 1246–1261). In CSCW. <https://doi.org/10.1145/2998181.2998299>
- Loveluck, L. (2018). *The secret app that gives Syrian civilians minutes to escape airstrikes*. *The Washington Post*. Retrieved from <https://www.washingtonpost.com/world/the-secret-app-that-gives-syrian-civilians-minutes-to-escape-airstrikes/2018/08/17/e91e66be-9cbf-11e8-b55e-50>
- McGuire, W. J. (1974). Psychological motives and communication gratification. In J. G. Blumler & E. Katz (Eds.), *The uses of mass communications: Current perspectives on gratifications research* (pp. 167–196). Beverly Hills, CA: Sage.
- Nah, S., & Yamamoto, M. (2018). Communication and citizenship revisited: Theorizing communication and citizen journalism practice as civic participation. *Communication Theory*, 29(1), 24–45.
- Neal, D., & Phillips, B. (1995). Effective emergency management: Reconsidering the bureaucratic approach. *Disasters*, 19, 327–337. <https://doi.org/10.1111/j.1467-7717.1995.tb00353.x>
- Ostertag, S. F., & Ortiz, D. G. (2015). "Katrina Bloggers Activate!": The long-term effects of digital media on civic participation. *Sociological Inquiry*, 85(1), 28–54. <https://doi.org/10.1111/soin.12060>
- Palen, L., & Hughes, A. L. (2018). Social media in disaster communication. In H. Rodriguez, W. Donner & J. E. Trainor (Eds.), *Handbook of disaster research* (2nd ed., pp. 497–518). Cham, Switzerland: Springer.
- Palen, L., Vieweg, S., Liu, S., & Hughes, A. L. (2009). Crisis in a networked world: Features of computer-mediated communication in the April 16, 2007 Virginia tech event. *Social Science Computer Review*, 27, 467–480. <https://doi.org/10.1177/0894439309332302>
- Pang, N., & Ng, J. (2016). Twittering the Little India Riot: Audience responses, information behavior and the use of emotive cues. *Computers in Human Behavior*, 54, 607–619. <https://doi.org/10.1016/j.chb.2015.08.047>
- Prince, S. H. (1920). *Catastrophe and social change, based upon a sociological study of the Halifax disaster* (No. 212–214). Columbia University.
- Pyle, A. S., & Boatwright, B. (2018). Coming together around hashtags: Exploring the formation of digital emergent citizen groups. *The Journal of Public Interest Communications*, 2(1), 3. <https://doi.org/10.32473/jpic.v2.i1.p3>
- Quarantelli, E. L., & Dynes, R. R. (1977). Response to social crisis and disaster. *Annual Review of Sociology*, 3, 23–49. <https://doi.org/10.1146/annurev.so.03.080177.000323>
- Quesenberry, K. A. (2016). *Social media strategy: Marketing and advertising in the consumer revolution*. New York, NY: Rowman & Littlefield.
- Rodriguez, H., Donner, W., & Trainor, J. E. (2018). *Handbook of disaster research* (2nd ed.). Cham, Switzerland: Springer International Publishing.
- Scanlon, J. (1998). Dealing with mass death after a community catastrophe: Handling bodies after the 1917 Halifax explosion. *Disaster Prevention and Management: An International Journal*, 7(4), 288–304. <https://doi.org/10.1108/09653569810230139>
- Seeger, M. W. (2006). Best practices in crisis communication: An expert panel process. *Journal of Applied Communication Research*, 34(3), 232–244. <https://doi.org/10.1080/00909880600769944>
- Sharpe, D. J., & Bennett, D. M. (2018). Use of Facebook for civilian-led disaster response after a winter storm: A "Snowed Out Atlanta" case study. *Journal of Emergency Management*, 16(4), 255–266. <https://doi.org/10.5055/jem.2018.0374>
- Stallings, R., & Quarantelli, E. (1985). Emergent citizen groups and emergency management. *Public Administration Review*, 45, 93–100. <https://doi.org/10.2307/3135003>
- Strandh, V., & Eklund, N. (2017). Emergent groups in disaster research: Varieties of scientific observation over time and across studies of nine natural disasters. *Journal of Contingencies and Crisis Management*, 26(3), 329–337. <https://doi.org/10.1111/1468-5973.12199>
- Tandoc Jr, E. C., & Takahashi, B. (2017). Log in if you survived: Collective coping on social media in the aftermath of Typhoon Haiyan in the Philippines. *New Media & Society*, 19(11), 1778–1793. <https://doi.org/10.1177/1461444816642755>
- Tang, Z., Zhang, L., Xu, F., & Vo, H. (2015). Examining the role of social media in California's drought risk management in 2014. *Natural Hazards*, 79(1), 171–193. <https://doi.org/10.1007/s11069-015-1835-2>
- Thompson, J., & Hawkes, R. (1962). Disaster, community organization and administrative process. In G. Baker & D. Chapman (Eds.), *Man and society in disaster* (pp. 268–300). New York, NY: Basic Books.
- Trubetskoy, A. (2014). *Map: How much snow it typically takes to cancel school in the U.S.* TheAtlantic. Retrieved from <https://www.theatlantic.com/education/archive/2014/01/map-how-much-snow-it-typically-takes-to-cancel-school-in-the-us/283470/>
- Veil, S. R., & Husted, R. A. (2012). Best practices as an assessment for crisis communication. *Journal of Communication Management*, 16(2), 131–145. <https://doi.org/10.1108/13632541211217560>
- Vicary, A. M., & Fraley, R. C. (2010). Student reactions to the shootings at Virginia Tech and Northern Illinois University: Does sharing grief and support over the Internet affect recovery? *Personal and Social Psychology Bulletin*, 36, 1555–1563. <https://doi.org/10.1177/0146167210384880>
- Vieweg, S., Palen, L., Liu, S. B., Hughes, A. L., & Sutton, J. N. (2008). *Collective intelligence in disaster: Examination of the phenomenon in the aftermath of the 2007 Virginia Tech shooting*. Boulder, CO: University of Colorado.
- Waldman, S., & Kaminska, K. (2015). *Connecting emergency management organizations with digitally enabled emergent volunteering*. Defence Research and Development Canada, DRDC-RDDC-2015-R271.
- Waldman, S., Yumagulova, L., Mackwani, Z., Benson, C., & Stone, J. T. (2017). Canadian citizens volunteering in disasters: From emergence to networked governance. *Journal of Contingencies and Crisis Management*, 26, 394–402. <https://doi.org/10.1111/1468-5973.12206>
- Walker, K. K. (2014). Cognitive and affective uses of a thoracic outlet syndrome Facebook support group. *Health Communication*, 29(8), 773–781. <https://doi.org/10.1080/10410236.2013.800830>
- Wang, B., & Zhuang, J. (2017). Crisis information distribution on Twitter: A content analysis of tweets during Hurricane Sandy. *Natural Hazards*, 89(1), 161–181. <https://doi.org/10.1007/s11069-017-2960-x>
- Wigley, S., & Fontenot, M. (2010). Crisis managers losing control of the message: A pilot study of the Virginia Tech shooting. *Public Relations Review*, 36(2), 187–189. <https://doi.org/10.1016/j.pubrev.2010.01.003>

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